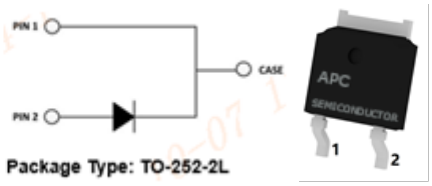
Preliminary Datasheet
ASA006V065F4

High Power SiC Schottky Barrier Diode
ASA006V065F4



Package Type: TO-252-2L

Applications:

- **Industrial power supplies: Industrial UPS**
- **Battery chargers**
- **Solar inverters**
- **Switch mode power supplies**

Features:

- **Revolutionary semiconductor material - Silicon Carbide (SiC)**
- **No reverse recovery**
- **High-speed switching performance**
- **System cost / size saving due to reduced cooling requirement**
- **Junction Temp range -55°C to 175°C**

Absolute Maximum Ratings (T_{amb}=25˚C, unless specified otherwise)

Symbol	Parameter		ASA006V065F4	Unit
V_{DC}	DC reverse voltage		650	V
V_{RRM}	Repetitive peak reverse voltage			
V_{RSM}	Surge peak reverse voltage			
I_F	Continuous Forward Current	T_C = 25℃	19	A
		T_C = 135℃	9	
		T_C = 155℃	6	
I_{FSM}	Surge non-repetitive forward current	T_C = 25℃, t_p = 10ms, half sine pulse	46	
		T_C = 150℃, t_p = 10ms, half sine pulse	37	
$I_{F,Max}$	Non-repetitive peak forward current	T_C = 25℃, t_p = 10μs, pulse	312	
I_{FRM}	Surge repetitive forward current	T_C = 25℃, t_p = 10ms, half sine wave D = 0.1	31	
P_{tot}	Total Power Dissipation		81	W
$\int i^2dt$	i^2t value		10	A^2s
T_j	Operating junction temperature range		-55 to 175	˚C
T_{stg}	Storage temperature range		-55 to 175	
M	Mounting torque	M3 screw	1	Nm

Static Electrical Characteristics ($T_C = T_A = 25^{\circ}C$, unless specified otherwise)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DC}	DC blocking voltage	I_R = 100 uA	650	-	-	V
V_F	Forward voltage	I_F = 6A, T_j = 25℃	-	1.27	1.45	V
		I_F = 6A, T_j = 175℃	-	1.50	1.70	
I_R	Reverse current	V_R = 650V, T_j = 25℃	-	3	48	uA
		V_R = 650V, T_j = 175℃	-	10	192	

Thermal Characteristics

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-case Thermal Resistance		-	1.85	-	℃/W

Dynamic Characteristics ($T_C = T_A = 25\ ^{\circ}C$, unless specified otherwise)

C	Total capacitance	V_R = 0V, f = 1MHz	-	353	-	pF
		V_R = 200V, f = 1MHz	-	39	-	
		V_R = 400V, f = 1MHz	-	31	-	
Q_C	Total capacitive charge	V_R = 400V	-	20	-	nC
E_C	Capacitance stored energy	V_R = 400V	-	3	-	uJ

Electrical Characteristic Diagrams

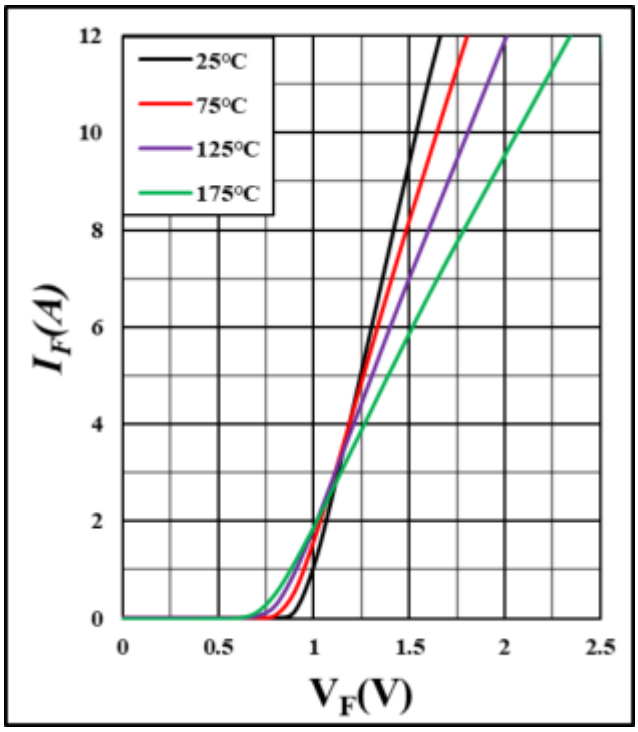


Figure 1. Forward characteristics

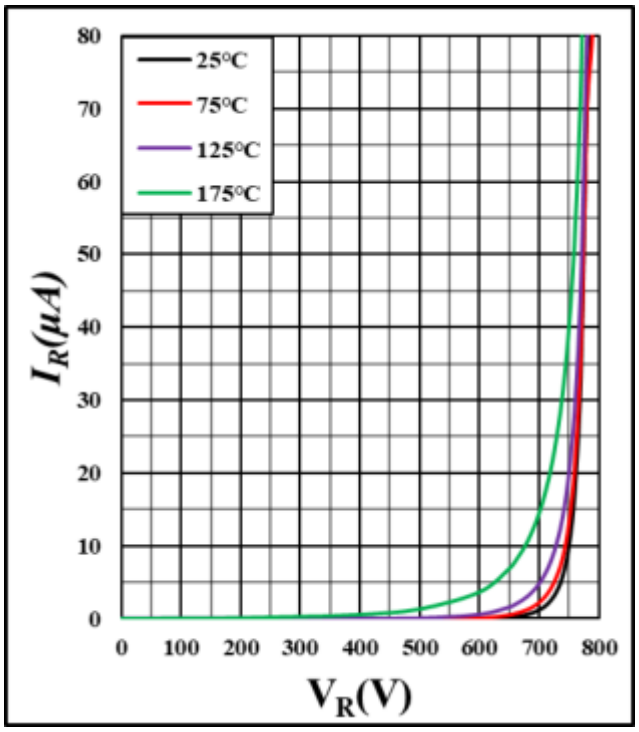


Figure 2. Reverse characteristics

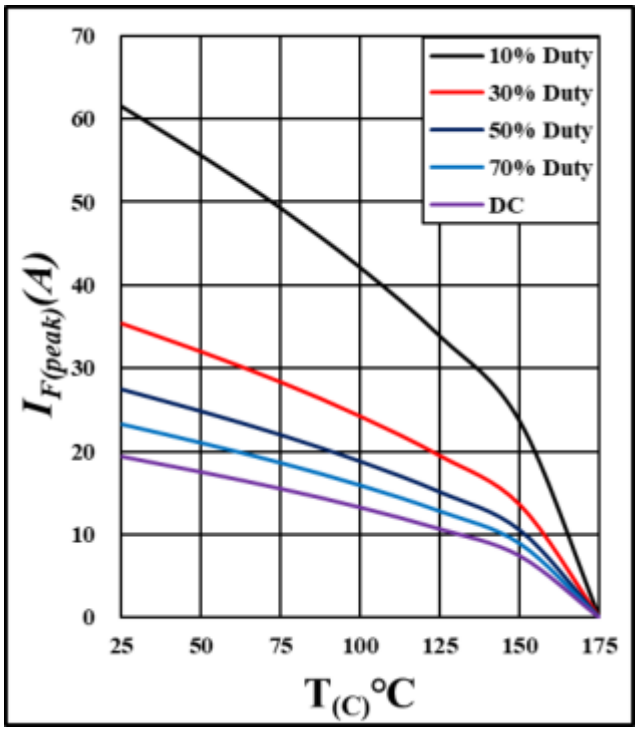


Figure 3. Current derating

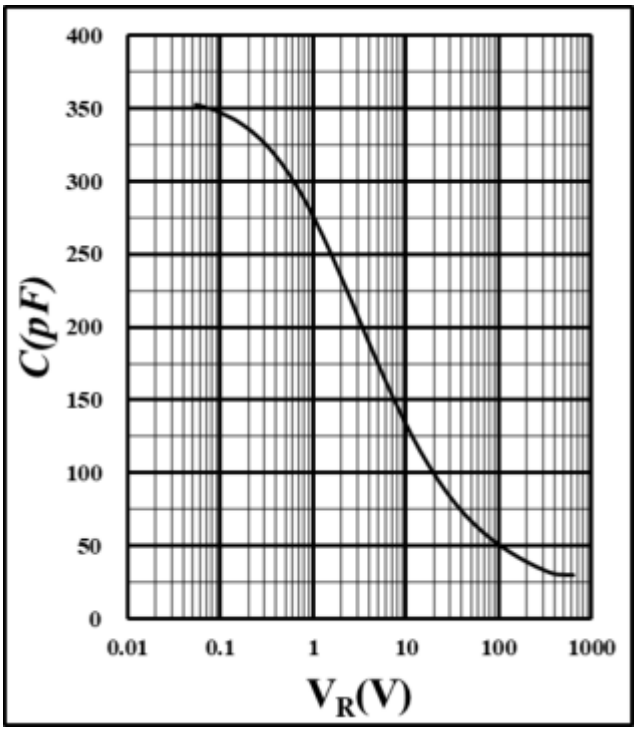


Figure 4. Capacitance vs. reverse voltage

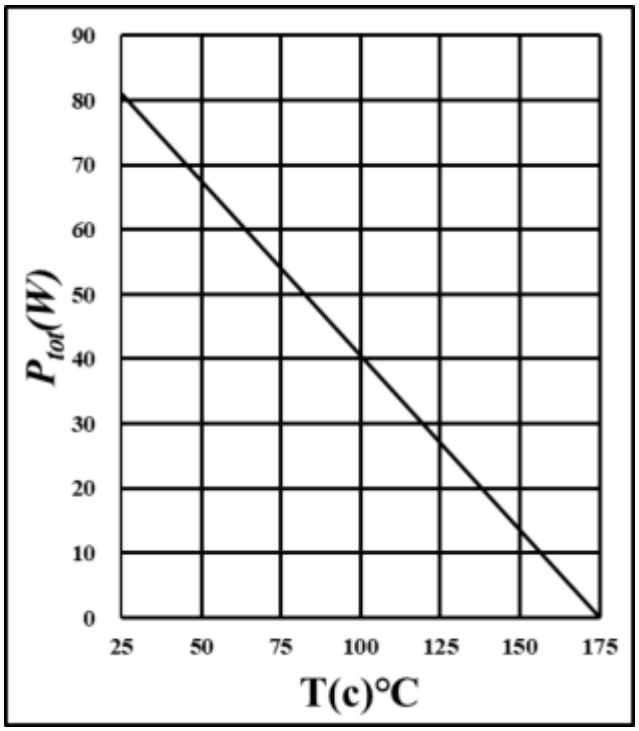


Figure 5. Power derating

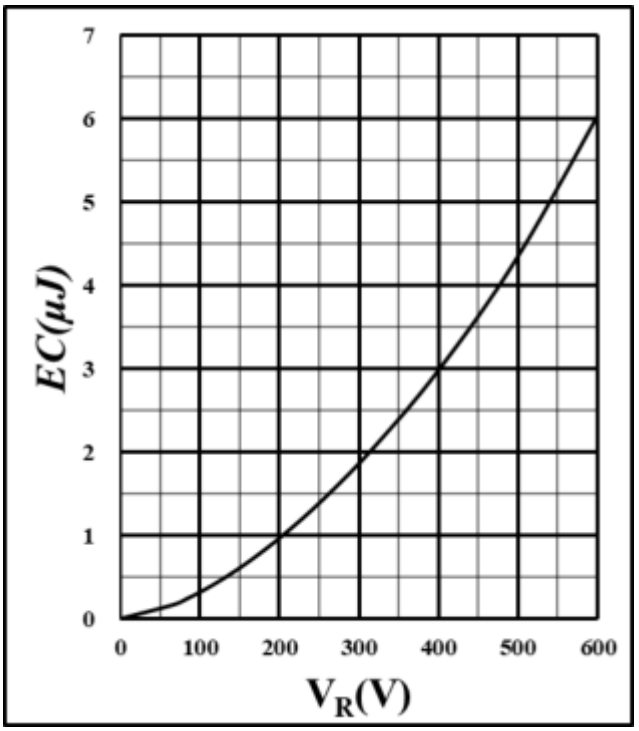


Figure 6. Capacitance stored energy

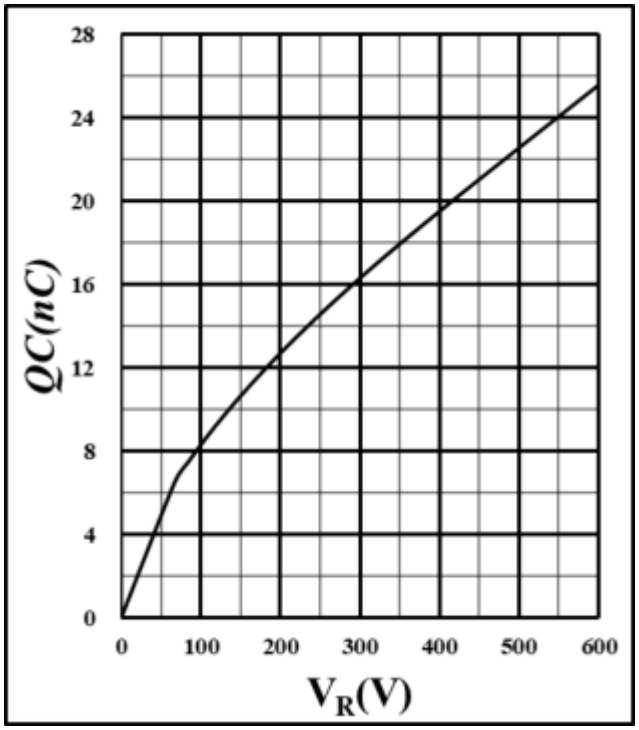


Figure 7. Total capacitance charge vs. reverse voltage

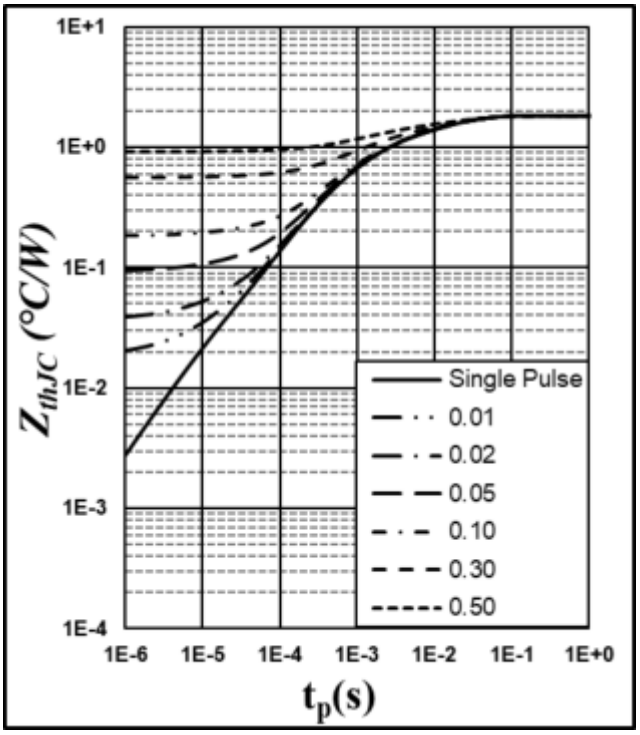
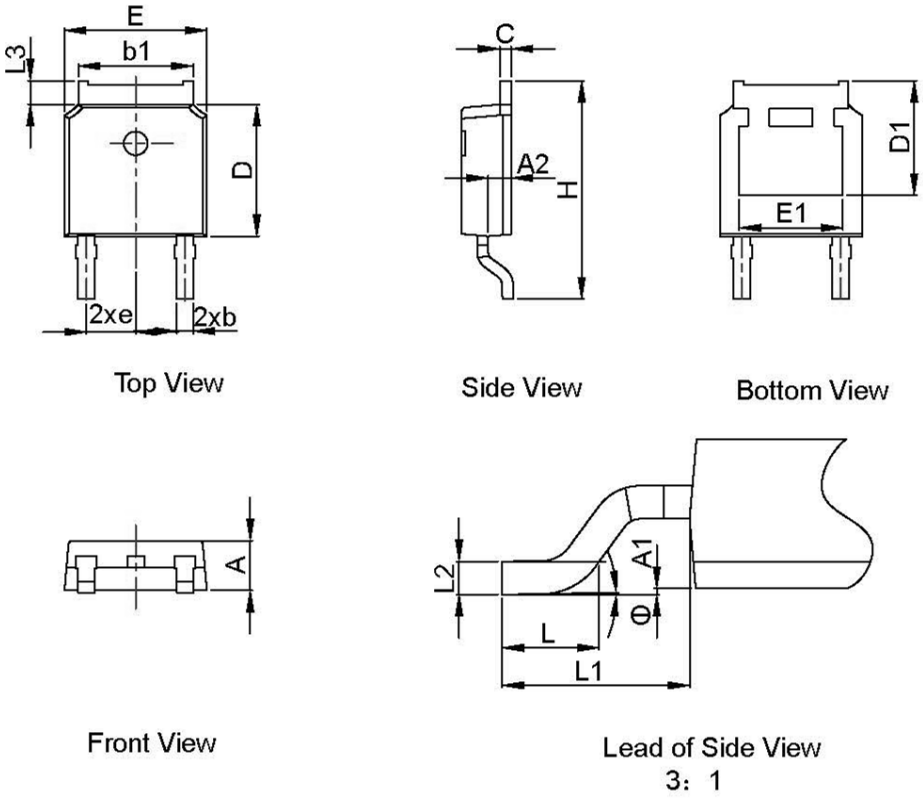


Figure 8. Transient Thermal Impedance

(Junction - Case)

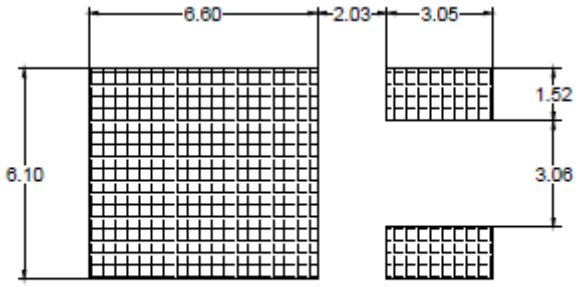
Package Information



Dimension unit: [mm]			
Symbol	Min	Nom	Max
A	2.20	2.30	2.38
A1	0	-	0.127
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b1	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30 REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286 BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.743 REF		
L2	0.51 BSC		
L3	0.88	-	1.28
θ	0°	-	8°

Recommended Solder Pad Layout

Note: All dimensions are in mm



TO-252-2L

Ordering Information

Part number	ASA006V065F4
Package	TO-252-2L
Unit quantity	2500 EA
Packing type	Tape & Reel

For more information, visit https://www.apowerc2.com